

**Title: POROUS PILLARED POLYMERIC COORDINATION COMPOUNDS****Abstract**

The present invention describes three-dimensional porous coordination compounds, a method of making the compounds, and a method of using the 5 compounds to contain reactants in a reaction, said compounds characterized by a plurality of sheets comprising a two-dimensional array of repeating structural units comprising at least one transition metal, one polyfunctional ligand and one exodentate ligand wherein: (1) at least one binding member of each said polyfunctional ligand is coordinated to transition metal atoms in two different repeating structural units within one sheet; (2) said binding sites of each exodentate bridging ligand are coordinated to transition metal atoms in each of two adjacent sheets, and (3) the ligands of the three-dimensional polymeric compound define channels and pores of molecular size throughout the structure of the compound.